WOMEN UNDER STRESS II:

EVALUATION OF THE CLINICAL PERFORMANCE

OF THE DEPARTMENT OF VETERANS AFFAIRS

WOMEN'S STRESS DISORDER TREATMENT TEAMS

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EXECUTIVE SUMMARY

As a result of recent revelations of widespread sexual harassment and abuse of women in the military (Francke, 1997), there has been particular interest in providing specialized services for female veterans who experienced traumatic experiences during their military service. In response to these concerns the Veterans Health Administration implemented Women's Stress Disorder Treatment Teams (WSDTTs), at four VA medical centers in 1993. Previously, we reported on the successful *implementation* of these teams (Fontana & Rosenheck, 1997a). The present report extends the evaluation of the WSDTT program by focusing on the *clinical performance* of these four teams, with particular focus on the women's 1) clinical outcomes, 2) satisfaction with treatment, 3) comfort in coming to VA for health care, and 4) a comparison of women treated by the WSDTT program with men treated by the PCT program.

Evaluation Design

A total of 224 consecutive admissions to the WSDTTs provided informed consent and were enrolled in the evaluation from July 1998 through June 2000. Performance was evaluated longitudinally, with assessment of clinical status and comfort in coming to VA made at intake, and four and eight months later. Satisfaction was assessed at four and eight months after intake. A comparison sample of PCT veterans consists of 195 consecutive men who provided informed consent and were admitted for specialized outpatient treatment from January 2000 through August 2001.

Plan of Data Analysis

The absence of significant differences among the four WSDTT sites enabled us to pool the data. Three sets of analyses were conducted. The first set evaluated the significance of clinical change in the WSDTT program overall. The second set dichotomized the sample as near to the median as possible on several classification variables to determine if there were subgroups of patients that were particularly responsive over the course of treatment. The third set compared PCT and WSDTT samples on selected background characteristics, clinical outcomes, satisfaction and services received.

Major Findings

- Women treated in the WSDTT program showed significant improvement in several clinical domains, specifically PTSD, violence, medical condition, overall adjustment, quality of life and the perceived impact of their illness on social functioning. As with male veterans treated in specialized PTSD programs, most of the improvement took place by the fourth month.

- Subgroup analyses revealed that women with a history of recent substance abuse improved more in their PTSD symptoms compared to those without a recent history of substance abuse. In addition, women who were less highly committed to working in

therapy increased their use of alcohol and drugs, while those who were more commited showed little change. This suggests that low commitment is a risk factor for substance use and should be taken as a warning sign by clinicians.

- On average, women said that they were "somewhat comfortable" in coming to VA for their health care. No evidence was found that exposure to the WSDTT program over time increased their level of comfort.

- Anxiolytic and antidepressant, but not antipsychotic, medications were prescribed increasingly from the beginning of treatment through eight months.

- There was a significant increase in the strength of the therapeutic alliance with WSDTT therapists as compared to prior therapists, although the strength of the alliance with WSDTT therapists did not change from four to eight months.

- Clinical outcomes were similar between veterans in the WSDTT and PCT programs. Veterans in the WSDTT programs, however, were more satisfied with their treatment than those in the PCT programs.

- There were no differences between WSDTT and PCT veterans in services received, from either VA or non-VA providers, four months after beginning treatment.

Conclusions

The defining difference of the WSDTT program compared to the PCT program lies in the type of traumatic exposure that characterizes the veterans and that provides the primary target of therapeutic efforts. For PCT veterans, traumatic exposure has been primarily combat-related and has been experienced at the hands of the enemy. For WSDTT veterans, traumatic exposure has been primarly sex-related and has been experienced at the hands of their male comrades. Clinical outcomes are comparable between the WSDTT and PCT programs in both the magnitude and pattern of improvement in clinical status. Veterans in the WSDTTs are more satisfied with their treatment than those in the PCTs. Taken as a whole, our results suggest a peaking of clinical effectiveness, patient motivation and treatment intensity at four months after the beginning of treatment, as well as significant improvement in PTSD, violence and medical condition. .

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INTRODUCTION

For the past two decades, women have been a growing segment of the US Armed Forces, constituting 14 % of all armed forces personnel in 1996. As a result, female veterans, currently 5% of US veterans, are an increasingly important component of the population served by the Department of Veterans Affairs (VA) health care system. Throughout its history, VA has served an overwhelmingly male population, and as a result there is concern about its ability to provide both acceptable and effective services to women. Although there is evidence that the proportion of female veterans who use VA services is not significantly different from the proportion of men who use these services (Hoff and Rosenheck, 1997, 1998; Rosenheck & Greenberg, 2002), anecdotal reports suggest that women may experience significant mistreatment and other forms of discomfort when they seek assistance at VA facilties (Wilborn, 2000). In addition, as a result of recent revelations of widespread sexual harassment and abuse of women in the military (Francke. 1997) there has been particular interest in providing specialized services for female veterans who experienced traumatic experiences during their military service.

In response to these concerns, the Veterans Health Administration implemented Women's Stress Disorder Treatment Teams (WSDTTs) at four VA medical centers in 1993. These programs were established on the premise that vulnerable populations are often best served by specialized programs that are staffed by clinicians who have, or who can develop, a special sensitivity to and expertise concerning the unique clinical needs of these populations. This premise has provided the basis for the development of a broad spectrum of specialized VA programs for the treatment of war-related posttraumatic stress disorder (PTSD) in the last decade, including the PTSD Clinical Teams (PCT) program. The PCT program has been the subject of other outcome studies (Fontana and Rosenheck, 1995; Rosenheck and Fontana, 1996; Fontana, 2002), reviewed briefly below, that now treats over 50,000 veterans per year at 96 sites (Fontana et al., 2002).

Implementation of the WSDTT Program

This report is a follow-up to our previous report on the implementation of the Women's Stress Disorder Treatment Team (WSDTT) Program (Fontana & Rosenheck, 1997a). Previously, we documented that the Program had been *implemented* successfully, with all four of the original sites seeing women who were suffering from stress reactions to traumas to which they had been exposed while on active duty in the military. The four original programs were those at Boston, Brecksville, Loma Linda and New Orleans. Forty eight percent of those treated had served overseas, and 18% had served in a war zone. Of the latter, the most prevalent war zone was the Persian Gulf (7%). While 12% reported having been under enemy fire and 21% reported ever having been in danger of death or injury, far greater percentages of women reported sexual traumatization by their male counterparts. Eighty-four percent reported ever being sexually harassed verbally, 63% ever having being sexually harassed physically, and 43% ever having being raped or having experienced an attempted rape. Structural equation modeling of the data suggested that sexual traumatization was particularly pernicious in leading to posttraumatic stress disorder (PTSD) (Fontana & Rosenheck, 1997a, pp.18-25; Fontana & Rosenheck, 1998).

Clinical Performance of the WSDTT Program

The present report focuses on the *performance* of the four original WSDTTs[1] with particular focus on women's 1) clinical outcomes, 2) satisfaction with treatment, 3) comfort in coming to VA for health care, and 4) similarities and differences compared to men treated by the PTSD Clinical Teams (PCTs). Clinical outcomes and satisfaction are important indices of the quality of services because they represent the effectiveness and responsiveness, respectively, of programs in addressing patients' needs. Of particular interest is whether the temporal pattern of effectiveness is the same or different from that for men treated in the PCTs (Fontana, 2002; Fontana & Rosenheck, 1994a; Fontana, Rosenheck & Spencer, 1993). Of further interest especially is whether women who were traumatized sexually responded better or worse than those who were not traumatized in this way. Also, comfort in coming to VA for health care is of special interest in the case of the WSDTTs because these programs were established expressly for women in an effort to counteract the historical male orientation of the VA culture. Of particular interest in this regard is whether continued experience with the WSDTTs increased women's comfort in coming to VA, and whether their comfort or discomfort with the VA environment affected the clinical benefits that they derive from treatment.

METHOD

Evaluation Design

Program. The WSDTT program was implemented in 1993 at four sites: Boston, Brecksville, Loma Linda and New Orleans. Treatment programming emphasized individual and group therapy with a cognitive behavioral approach. Special attention was paid to sexual harassment and abuse because women are particularly prone to be exposed to these traumatic experiences. Ninety-five percent of the women were treated by a female therapist.

Sample. A total of 224 consecutive admissions provided informed consent and were enrolled in the evaluation of the WSDTTs from July 1998 through June 2000: 66 from Boston; 46 from Brecksville; 75 from Loma Linda; and 37 from New Orleans. Ninety-eigth percent of the women invited to participate in the study did so. Patients averaged 41.11 (SD=10.09) years of age and 13.77 (SD=1.68) years of education. Twenty-eight percent were currently married, 40 percent were separated or divorced, and 29 percent were never married. Forty-four percent were of minority ethnicity.

Data Collection. We selected a two-year time-period for enrollment in order to ensure a large enough sample to yield stable results. Specially designated evaluation assistants who were not associated clinically with the programs collected data from patients and their clinicians. Performance was evaluated longitudinally, with assessment of clinical status and comfort in coming to VA made at intake, and four and eight months later. Satisfaction was assessed only at

1 These were the only WSDTTs in existence at this time. Subsequently, another WSDTT has been established at Madison, WI.

four and eight months after intake, because patients needed some period of time in treatment before making a judgment of their satisfaction. A longitudinal design permits the most precise determination of improvement (or deterioration) in any given index. In the present case, the longitudinal design permits tracking the extent and course of change in clinical status and comfort from the beginning of treatment to eight months later. Satisfaction can be tracked between four months and eight months.

Four and eight months were selected as the follow-up points on the basis of our first evaluation of the VA specialized outpatient treatment of PTSD for men by the PCTs (Fontana & Rosenheck, 1994a; Rosenheck & Fontana, 1996). The PCT evaluation found that there were two phases to the outcomes of outpatient treatment. Virtually all change in clinical status took place during the first four months following the beginning of treatment. Subsequently, over a period of an additional 18 months, there was no appreciable change in clinical status. A second evaluation of the PCTs confirmed the occurrence of significant change during the first four months (Fontana, 2002). In the interests of economy of effort, therefore, we assessed outcome at four months to capture the phase of active change and again at eight months to capture the level of stabilization that could be expected to characterize the second phase.

Measures

Veterans' characteristics, exposure to trauma in the military and selected personality orientations were assessed at intake. Veterans' characteristics documented in both the PCT and WSDTT studies include age, education, marital status, ethnic minority group membership, service era, service in a warzone, receipt of hostile/friendly fire, participation in atrocities, receipt of VA compensation or pension and psychiatric disability rating. In addition, a history of incarceration, history of substance abuse, number of psychiatric diagnoses, prior outpatient and inpatient treatment for psychiatric and substance abuse disorders, and prior specialized PTSD treatment were assessed for veterans in the WSDTT study.

Exposure to trauma in the military was assessed further for veterans in the WSDTT study by the Women's War Stress Inventory (Wolfe et al., 1993). This instrument provided an assessment by two subscales representing 1) combat and noncombat, duty-related exposure (coefficient alpha=.80) as well as exposure to 2) sexual harassment, assault and rape (coefficient alpha=.81). Duty-related stress was clarified further by distinguishing among items reflecting 1) threat of death or injury to oneself, 2) witnessing death or injury of others, 3) bad physical conditions and 4) insufficiency of supplies. Similarly, sexual stress was clarified further by distinguishing among 1) verbal harassment, 2) physical harassment and 3) being subjected to verbal threats and/or physical force. See Table 1 for means, standard deviations and ranges for these scales.

As part of the WSDTT study, we also included several measures of veterans' personality orientations that potentially might be related to their clinical outcomes and service use. These included their locus of control orientations: internal orientation (coefficient alpha=.71) which focuses on reliance on oneself for effecting change; powerful others orientation (coefficient

Table 1. Scales Measuring Military Trauma, Personality Orientations and Social Support

Measurement Scale	Mean	S.D.	Range
Military Trauma			
Duty-Related Total	5.03	5.86	0 to 26
Threat of Injury/Death	1.37	2.46	0 to 10
Witness Injury/Death	1.27	2.37	0 to 12
Bad Physical Conditions	1.17	1.52	0 to 4
Insufficient Supplies	0.83	1.25	0 to 4
Sexual Total	6.56	3.97	0 to 12
Verbal Harassment	2.63	1.38	0 to 4
Physical Harassment	2.35	1.71	0 to 4
Threat and/or Force	1.58	1.58	0 to 4
Personality Orientations			
Internal Locus of Control	13.39	3.38	4 to 20
Powerful Others Locus of Control	15.56	3.20	6 to 24
Self -Efficacy	1.78	0.63	1 to 3
Vulnerability to Mental Illness	23.23	5.56	8 to 32
Social Support			
Family and Friends	14.70	4.88	5 to 25

alpha=.73) which focuses on reliance on a therapist for effecting change (Wallston & Wallston, 1978); health beliefs concerning self-efficacy (a single-item measure of reliance on oneself versus others); perceived vulnerability to mental illness (coefficient alpha=.87); and perceived social support from family and friends (coefficient alpha=.91) (Smilkstein et al., 1982). See Table 1 for means, standard deviations and ranges for these scales.

Treatment process in the WSDTT study was measured by single items reflecting therapists' clinical impressions of 1) veterans' commitment to working in therapy and 2) their regularity of attendance in therapy. The items were augmented by five-item scales that measured

both 3) veterans' (coefficient alpha=.92) and 4) therapists' (coefficient alpha=.81) perceptions of the strength of the therapeutic alliance that existed between them. The alliance items were taken from the Therapeutic Alliance Scale developed originally by Horvath and Greenberg (1989) and as modified by Neale and Rosenheck (1995) and Chinman, Rosenheck and Lam (2000). Alliance items address reaching a good understanding of desirable changes, working on mutually agreed upon goals, and being of help to the patient. In addition, we included two items that measured veterans' subjective comfort in coming to VA for psychiatric or medical/surgical services, respectively. The choices for these items ranged from "1 - very uncomfortable" to "4 - very comfortable". We found that the items were correlated highly with each other and that they had a high internal consistency when combined into a single index of 5) comfort with the VA setting (coefficient alpha=.80). Finally, we measured 6) veterans' satisfaction with treatment using a four-item scale derived from the work of Attkisson and Zwick (1982) (coefficient alpha=.86). Commitment, attendance, therapists' impressions of the therapeutic alliance and veterans' satisfaction with WSDTT treatment were assessed only at four and eight months. Veterans' impressions of the therapeutic alliance with their prior therapists and their comfort in coming to VA for services prior to treatment with the WSDTT were assessed at intake as well as at four and eight months. See Table 2 for the means, standard deviations and ranges of these scales at four months.

The type and amount of clinical services received during the first four months of treatment were measured the same way in both the PCT (Fontana, 2002) and WSDTT evaluations. These measures used veterans' reports to document the number of 1) VA and 2) nonVA outpatient sessions and 3) inpatient days from VA, and 4) the number of sessions received from nonprofessional, self-help sources.

Several measures of clinical status were used in common for both the WSDTT and PCT evaluations. The full version of the Mississippi Scale for Combat-Related PTSD (Keane et al., 1988) was replaced by a short version developed to be maximally sensitive to change in treatment while retaining high correspondence with the full scale (coefficient alpha=.81) (Fontana & Rosenheck, 1994b). The Alcohol, Drug and Medical composite indices of the Addiction Severity Index (McLellan et al., 1985), a violence scale derived from the National Vietnam Veterans Readjustment Study (coefficient alpha=.70) (Kulka et al., 1990), and the number of days employed in the previous month were the same in both studies.

Additionally in the WSDTT study, we augmented the assessment of PTSD by including another measure of PTSD in the form of the four-item NEPEC Scale (coefficient scale=.84) that we have used in other studies of VA PTSD treatment (Fontana & Rosenheck, 1997b) and that has a strong but nonredundant correspondence with the Mississippi Scale (r=.68). Further, we included measurement of overall adjustment in the form of the Global Assessment of Functioning scale (GAF) (American Psychiatric Association, 1984; Endicott et al., 1976); Quality of Life (Lehman, 1988); and the perceived impact of mental illness on social functioning (coefficient alpha=.78) (cf., Cockburn et al., 1987). This last variable was measured by three items that called for veterans' perceptions of the extent to which "emotional problems" caused problems with work or other regular daily activities". All these measures were assessed at intake,

four months and eight months. See Table 2 for the means, standard deviations and ranges for these scales at intake.

Table 2. Scales Measuring Treatment Process and Clinical Status

Measurement Scale*	Mean	S.D.	Range
Treatment Process			
Therapeutic Alliance (Pt.)	20.77	4.07	5 to 25
Therapeutic Alliance (Th.)	19.69	2.84	9 to 25
Comfort with VA	5.89	1.77	2 to 8
Satisfaction with Treatment	16.71	3.22	4.5 to 20
Clinical Status			
PTSD (Mississippi Scale)	32.30	7.76	12 to 51
PTSD (NEPEC Scale)	12.89	4.55	4 to 20
Alcohol Abuse	0.08	0.17	0 to .92
Drug Abuse	0.03	0.08	0 to .72
Violence	0.70	1.07	0 to 4
Days Worked	8.85	11.14	0 to 30
Medical Problem	0.71	0.37	.17 to 1.17
Global Assessment of Functioning (GAF)	52.67	7.83	30 to 85
Quality of Life	3.27	1.31	1 to 6
Impact of Mental Illness On Social Functioning	10.17	2.01	3 to 12

* Statistics are presented for Treatment Process at 4 months and for Clinical Status at Intake.

Plan of Data Analysis

First Step. The first step in the data analyses was to compare the four WSDTT programs with each other using analysis of variance to evaluate the significance of differences in clinical outcomes, satisfaction, comfort, treatment processes and treatment received. In the absence of significant differences we planned to pool the data from all four sites in subsequent analyses.

Second Step. In the second step, analyses of the longitudinal variables were conducted by the repeated measures procedure of the SAS system for mixed models, using a first-order autoregressive structure on the covariance matrices (Littel et al., 1996). The mixed model approach has at least two major advantages over the traditional repeated measures analysis of variance: 1) it utilizes all the available data; and 2) it permits the modeling and evaluation of changes at across time-points as linear effects rather than specifying then as a linear effects a priori. As described further below, time was modeled as a random effect for the longitudinal variables and the classification variables were modeled as fixed effects. Background patient characteristics that differed across programs were included in the longitudinal analyses as covariates. These analyses treated the sample as a whole in which the sigificance of clinical change in the WSDTT program overall was evaluated.

Third Step. The WSDTT sample was dichotomized as near to the median as possible on several classification variables in order to determine if there were subgroups that were particularly responsive or unresponsive over the course of treatment. The following patient characteristics were examined in longitudinal analyses: 1) age; 2) education; 3) marital status; 4) ethnic minority group membership; 5) substance abuse; 6) internal locus of control; 7) powerful others locus of control; 8) perceived vulnerability to illness; 9) family support; 10) previous specialized PTSD treatment; 11) receipt of VA compensation for a psychiatric disorder; 12) duty-related stress overall, and more specifically 13) threat of death or injury to self, 14) death or injury of others, 15) harsh physical conditions, or 16) insufficiency of supplies; as well as 17) sexual stress overall, and more specifically 18) verbal harassment, 19) physical harassment and 20) verbal threat or force. In addition, interactions of time and 21) service era and 22) self-efficacy were examined in their original metric because they did not lend themselves to dichotomization.

Treatment processes examined across WSDTT subgroups were: 1) prescription of anxiolytic, 2) antidepressant and 3) antipsychotic medications; therapeutic alliance from both the 4) veterans' and 5) therapists' points of view; patients' 6) commitment to working in therapy and the 7) regularity of their attendance in treatment; and 8) veterans' comfort in coming to VA for health services.

Evidence for the existence of such subgroups would be found in the form of significant interactions between the classification variables and time. Sexual traumatization and comfort in coming to the VA were two classification variables that were of particular interest and special

relevance to the WSDTT program. It is especially important to know in this program, if more traumatized women or those less comfortable in coming to the VA would have poorer outcomes and less satisfaction with the program thanother female patients. Other variables that were of particular interest were those that had been found previously to differentiate subgroups among men in the PCT outcome evaluation. Notable among these variables were an immediate history of substance abuse and commitment to working in therapy (Fontana, Rosenheck & Spencer, 1993).

Chi-square analyses were used to test the associations between the changes in comfort level from intake to four months and from four months to eight months with the changes in therapeutic alliance and the shift from individual to group sessions in the corresponding time-periods.

Fourth Step. Women treated by the WSDTTs were compared to men treated by the PCTs on several background characteristics, clinical outcomes, satisfaction, and clinical services received. Cross-sectional comparisons of patient characteristics, satisfaction with treatment and services received were conducted by t-tests and chi-squares; and longitudinal comparisons were conducted by mixed model, repeated analyses of variance. No covariates were included because differences in main effects between groups as well as differences across time were of interest.

Finally, it should be noted that the means that are reported for the same variables are slightly different in the different analyses. There are three reasons for this: 1) the sample sizes differ somewhat between cross-sectional analyses that include only one time-point such as the intake time-point and longitudinal analyses that include more than one time-point; 2) the number and content of covariates that were appropriate at each step of the analyses were different; and 3) the means are adjusted to reflect the influences of covariates and different sample sizes.

RESULTS

Comparisons among the Four WSDTTs

Analyses of variance revealed that the four WSDTT programs did not differ significantly among themselves on clinical outcomes, satisfaction, comfort, and most of the treatment processes. An exception among treatment processes was that the programs did differ in the prescription of anxiolytic medications. In addition, programs differed significantly in the amount of individual and group therapy sessions that veterans received from them. Inspection of Table 3 shows that more veterans in the Loma Linda program and fewer veterans in the Brecksville program were prescribed anxiolytics than veterans in the Boston and New Orleans programs. Veterans in the Boston program received more individual sessions than veterans in the other programs, and veterans in the Brecksville program received more group sessions than veterans in the other programs.

The absence of systematic and widespread differences across the individual programs led us to pool the data for subsequent analyses. In order to be as conservative as possible, however,

we controlled for any effects due to variation among the individual programs by entering program site as a covariate in all other analyses.

Table 3. Significant Comparisons among the WSDTT Programs

	Anxiolytics Prescribed		Individual Sessions		Group Sessions	
	4 Mos.	8 Mos.	4 Mos.	8 Mos.	4 Mos.	8 Mos.
F	6.95	5.08	5.27	5.67	5.76	2.62
df	3,152	3,188	3,188	3,152	3,188	3,152
P	0.001	0.003	0.002	0.001	0.001	0.053
Boston	0.33	0.31	13.09	12.82	0.59	1.71
Brecksville	0.11	0.09	8.81	6.56	2.81	4.53
Loma Linda	0.47	0.55	8.84	7.38	0.79	1.85
New Orleans	0.29	0.35	8.42	10.25	0.79	3.35

Change over Time for the WSDTT Program as a Whole

Improvement or deterioration over the course of time from intake to four months to eight months was evaluated by repeated measures mixed model analyses. Sixty-eight percent (N=152) of the sample was followed up successfully at four months, and 61% (N=137) was followed successfully at eight months. Veterans who were followed up successfully were compared by t-test with those who were not followed up successfully at each time point. Comparisons were conducted on a total of 53 admission measures that included veterans' sociodemographic characteristics, history of traumatic exposure, personality factors and beliefs, social support, clinical status, medication prescription, and prior history of psychiatric treatment. At each time point, there were only five measures on which the two groups differed significantly. Moreover, among these significant differences, there was only one measure that was significant at both time points: veterans who were followed up successfully reported a higher level of quality of life at admission than those who were not followed up successfully. It can be concluded, therefore, that the results of subsequent analyses of the changes over time can be generalized to the whole sample with little bias being introduced by missing data.

The means and significance levels for clinical outcomes and treatment processes can be found in Table 4. Inspection of Table 4 shows that most clinical outcomes and treatment processes changed significantly over time. Many of the changes in clinical outcomes were significant from both intake to four months and intake to eight months. Not presented in Table 4 are the tests of the changes in outcomes from four to eight months because none of them were

significant. Ratings of commitment to treatment and attendance, however, did show significant change from four to eight months.

Table 4. Clinical Outcomes and Treatment Processes over Time

	Time-Point					Significance Level		
	Intake	4 Mos.	% Change	8 Mos.	% Change	Time	Intake vs. 4 Mos.	Intake vs. 8 Mos.
Clinical Outcome								
PTSD (Miss. Scale)	32.56	30.92	-5.04	30.92	-5.04	0.0003	0.0001	0.0020
PTSD (NEPEC Scale)	13.07	12.59	-3.67	12.55	-3.98	0.0500	0.0300	n.s.
Alcohol Abuse	0.08	0.08	0.00	0.10	25.00	n.s.	n.s.	n.s.
Drug Abuse	0.03	0.04	33.33	0.06	100.00	0.0009	n.s.	0.0009
Violence Scale	0.71	0.50	-29.58	0.50	-29.58	0.0070	0.0020	0.0200
Days Worked	9.27	9.73	4.96	9.40	1.40	n.s.	n.s.	n.s.
Medical Problem	0.71	0.68	-4.23	0.61	-14.08	0.0080	n.s.	0.0070
Global Assessment of Functioning (GAF)	52.83	55.17	4.43	55.67	5.38	0.0001	0.0001	0.0002
Quality of Life	3.24	3.62	11.73	3.77	16.36	0.0001	0.0004	0.0001
Illness Impact	10.15	9.09	-10.44	9.23	-9.06	0.0001	0.0001	0.0001
Treatment Process								
Anxiolytics	0.20	0.31	55.00	0.31	55.00	0.0030	0.0005	0.0070
Antidepressants	0.61	0.70	14.75	0.73	19.67	0.0020	0.0040	0.0030
Antipsychotics	0.08	0.10	25.00	0.09	12.50	n.s.	n.s.	n.s.
Therapeutic Alliance (Pt.)	19.85	20.61	3.83	20.98	5.69	0.0300	n.s.	0.0300
Therapeutic Alliance (St.)		19.63		19.51		n.s.		
Comfort with VA	5.88	5.94	1.02	5.98	1.70	n.s.	n.s.	n.s.
Satisfaction		16.69		16.29		n.s.		
Commitment		2.40		2.17		0.0070		
Attendance		2.65		2.44		0.0200		

With regard to clinical outcomes, there were significant improvements in PTSD symptoms (as measured by both the Short Mississippi Scale and the NEPEC Scale), violence, general medical health status, overall social functioning (as measured by the GAF), quality of life and the perceived impact of the illness on social functioning. There was significant worsening of one measure, drug abuse (see the next section for qualifications to this overall trend). There were no significant changes in alcohol abuse or employment.

Regarding treatment processes, there were significant increases in the prescription of anxiolytic and antidepressant medications; but there was no significant change in the prescription of antipsychotic medications, which were prescribed minimally overall. Veterans' reports show a significant increase in the strength of the therapeutic alliance between them and their program therapists from that which existed between them and their prior therapists. Therapists' reports are consistent with veterans' reports in showing no significant change in strength of the alliance from four months to eight months. Veterans' comfort in coming to VA also did not change significantly over time, nor did their satisfaction with treatment change significantly from four months to eight months. Veterans' commitment to working in therapy and the regularity of their attendance in therapy, however, decreased significantly from four months to eight months.

Means and significance levels for the amount of treatment received are presented in Table 5. As expected, the number of individual sessions decreased and the number of group sessions increased significantly from four months to eight months. The amount of outpatient and inpatient

Table 5. Amount of Treatment Received over Time

Number of Sessions	Time-Point			Significance Level		
	Intake	4 Mos.	8 Mos.	Time	Intake vs. 4	Intake vs. 8
WSDTTs Only						
Individual		9.85	8.57	0.0300		
Group		1.33	2.68	0.0004		
All Sources						
VA Outpatient	11.10	14.88	14.47	n.s.	n.s.	n.s.
NonVA Outpatient	6.49	2.35	1.49	0.0070	0.0200	0.0100
Self Help Group	5.70	5.20	5.25	n.s.	n.s.	n.s.
VA Inpatient Days	4.37	3.89	4.84	n.s.	n.s.	n.s.
NonVA Inpatient Days	1.56	1.01	0.89	n.s.	n.s.	n.s.

treatment received concurrently from other VA sources and nonVA sources, however, did not change significantly over time, with the notable exception of a significant decrease in outpatient

treatment from nonVA sources. These trends suggest that the availability of these specialized PTSD programs produced a shift away from non-VA to VA providers.

Change over Time for Subgroups of Patients

We examined several patient characteristics and treatment processes in order to determine if there were subgroups of veterans that were particularly responsive to treatment. We did this by dichotomizing these variables at the median and evaluating each one for differential change over time with respect to the 10 major outcome measures: Short Mississippi Scale for PTSD, NEPEC PTSD Scale, Alcohol composite of the ASI, Drug composite of the ASI, Violence Scale from the NVVRS, number of days Worked, Medical composite of the ASI, GAF, Quality of Life and Sickness Impact on social functioning.

In order to minimize capitalizing on chance alone, we required that any patient characteristic or treatment process reach statistical significance at $p<.05$ for at least two of the 10 outcome measures for it to be considered significant. Using this criterion, subgrouping was significant for only four patient characteristics (age, substance abuse, verbal harassment and physical harassment) and only one measure of treatment process (commitment to working in therapy). As can be seen in Tables 6 through 10, most of the significant interactions occurred for the Alcohol and Drug outcome measures, with single occurrences for the Short Mississippi Scale for PTSD, the Violence Scale and the Sickness Impact Scale.

Table 6. Means and Interaction Results for Changes in Outcomes over Time by Age

Outcome Measure	Age	Time-Point			Significance		
		Intake	4 Mos.	8 Mos.	F	df	p
Alcohol Composite	Older	0.06	0.07	0.10	4.01	1, 287	0.0500
	Younger	0.11	0.09	0.10			
Violence Scale	Older	0.48	0.45	0.42	4.25	1, 286	0.0400
	Younger	0.92	0.51	0.56			

Table 7. Means and Interaction Results for Changes in Outcomes over Time by Level of Substance Use Prior to Intake

Outcome Measure	Substance Use	Time-Point			Significance		
		Intake	4 Mos.	8 Mos.	F	df	p
Mississippi Scale	High	34.19	31.08	30.82	5.99	1, 287	0.020
	Low	31.51	30.52	30.58			
Alcohol Composite	High	0.22	0.12	0.13	36.95	1, 287	0.0001
	Low	0.02	0.06	0.08			
Drug Composite	High	0.08	0.06	0.07	16.33	1, 287	0.0001
	Low	0.01	0.04	0.05			

Table 8. Means and Interaction Results for Changes in Outcomes over Time by Level of Verbal Harassment

Outcome Measure	Verbal Har.	Time-Point			Significance		
		Intake	4 Mos.	8 Mos.	F	df	p
Alcohol Composite	High	0.08	0.09	0.12	4.87	1, 287	0.030
	Low	0.09	0.07	0.07			
Drug Composite	High	0.03	0.05	0.06	4.10	1, 287	0.0500
	Low	0.04	0.04	0.05			
Illness Impact	High	10.27	9.45	9.78	6.59	1, 286	0.0100
	Low	10.01	8.58	8.46			

Table 9. Means and Interaction Results for Changes in Outcomes over Time by Level of Physical Harassment

Outcome Measure	Phys. Har.	Time-Point			Significance		
		Intake	4 Mos.	8 Mos.	F	df	p
Alcohol Composite	High	0.07	0.09	0.12	7.88	1, 287	0.0060
	Low	0.09	0.06	0.07			
Drug Composite	High	0.03	0.05	0.07	6.60	1, 287	0.0100
	Low	0.04	0.04	0.04			

Table 10. Means and Interaction Results for Changes in Outcomes over Time by Level of Commitment to Work in Therapy

Outcome Measure	Comm.	Time-Point			Significance		
		Intake	4 Mos.	8 Mos.	F	df	p
Alcohol Composite	High	0.10	0.08	0.08	5.55	1, 263	0.0200
	Low	0.07	0.09	0.12			
Drug Composite	High	0.03	0.05	0.05	3.94	1, 263	0.0500
	Low	0.03	0.04	0.07			

With regard to substance use, veterans who were higher in substance use to begin with showed greater decreases in their substance use and their PTSD symptoms. On the other hand, veterans who were lower in substance use to begin with, older, more sexually harassed either verbally or physically, or less committed to working in therapy increased their substance use.

Younger veterans had larger decreases in their violent behaviors; and those subjected to verbal harassment experienced more of a decrease in the impact of their illness on their behavior. No significant interactions were obtained for the other outcomes: the NEPEC PTSD Scale, Work, Medical composite, GAF and Quality of Life.

The change in comfort level was found to be associated positively with the change in strength of the therapeutic alliance for both intake to four months (Chi-square=13.28, 4 df, p=.01) and four months to eight months (Chi-square=42.73, 2 df, p=.001). No significant associations were found, however, between the change in comfort level from four to eight months and either the shift in relative emphasis on individual and group therapy or the change in prescription of anxiolytic, antidepressant or antipsychotic medications during this same time period.

Comparison of Veterans Treated by WSDTTs and PCTs

The PCT study was conducted to develop an instrument to monitor the effectiveness of specialized outpatient PTSD treatment that was both maximally efficient and valid (Fontana, 2002). In accordance with the results of a previous study that showed that virtually all change can be expected to be manifested by four months (Fontana, Rosenheck & Spencer, 1993), only this one follow-up point was included in the design. The sample consisted of 195 men who were admitted to treatment between January 2000 and August 2001. We believe that a comparison of WSDTT and PCT programs can be illuminating by identifying similarities and differences in their veterans' background characteristics, clinical outcomes, satisfaction with treatment and clinical services received.

Table 11. Comparison of PCT and WSDTT Veterans on Sociodemographic and Military Background Variables

Background*	Veterans		Significance Level		
	PCT N=195	WSDTT N=224	t-test/ Chi-square	d.f.	p
Sociodemographic					
Age	54.78 (9.88)	41.11 (10.09)	13.86	410	0.0001
Education	13.42 (2.28)	13.77 (1.68)	1.73	410	0.0900
% Currently Married	56.02	28.13	33.17	1	0.0010
% Never Married	4.71	28.57	40.49	1	0.0010
% Minority Ethnicity	19.05	12.72	29.47	1	0.0010
% Currently Employed	40.93	42.86	0.16	1	n.s.
Military					
Service Era			175.59	4	0.0001
% World War II	7.89	0.40			
% Korea	5.26	1.80			
% Vietnam	74.21	20.50			
% Persian Gulf	7.89	33.00			
% Peace Time	4.74	44.20			
% Served in Warzone	89.53	12.50	245.09	1	0.0001
% Received Hostile/Friendly Fire	87.89	10.71	246.42	1	0.0001
% Participated in Atrocities	12.99	0.00	30.62	1	0.0010
Psychiatric					
% Service Connected for PTSD	35.89	12.95	29.83	1	0.0010
Psychiatric Disability Rating	39.27 (27.96)	43.41 (34.71)	0.71	119	n.s.

*Standard deviations in parentheses.

Sociodemographic background characteristics, military experiences and current psychiatric status are presented in Table 11. Compared to PCT veterans, WSDTT veterans were younger, less frequently currently married and more frequently never married, and less frequently of minority ethnicity. Younger age might reflect the greater percentage of women in the military in recent years compared to years past. Male veterans were much more likely to have served in a war zone then female veterans. This difference is reflected in all the other military experiences. Men served more often in World War II, Korea and Vietnam, while women served more often in peacetime. Understandably, then, men reported greater levels of threat of injury or death and greater participation in committing atrocities. The difference for the Persian Gulf era may reflect the greater percentage of women in the military and serving in a combat support capacity during these hostilities than was the case in previous service eras. The finding that proportionally fewer women are service connected for PTSD than men might be due to the fact that specialized programs for PTSD have existed for a longer time for men than for women. Men, therefore, would have had more opportunity to have been examined and certified than women. This interpretation is supported by the further finding that those women whose PTSD has been certified as service connected are rated as having disability levels that are comparable to men.

WSDTT and PCT veterans are compared on clinical outcomes, satisfaction with treatment and receipt of clinical services in Table 12. With regard to clinical outcomes, there was significant improvement in severity of PTSD symptoms, violence and medical condition across programs. Drug abuse, however, showed a marginally significant increase. There was no significant interaction of program (study) by time for any of the outcomes, suggesting that outcomes were comparable for men and women. Considering the levels of clinical status overall, men had a greater severity of PTSD symptoms and violence and women has a greater severity of alcohol and drug abuse. The increase in drug abuse has already been noted as a problem that warrants closer attention.

WSDTT veterans were more satisfied with their treatment than PCT veterans. It is difficult to know the basis for this difference. One possibility is that the WSDTTs are operating in ways that are more satisfying to veterans. Another possibility is that the newness of the WSDTT programs engendered a “honeymoon” effect in which veterans may have been more appreciative of the availability of programs specialized for them, and staff may have been more enthused and optimistic at the opportunity of participating in programs for a formerly neglected population of veterans. Further monitoring of the WSDTT and PCT programs will help to evaluate these possibilities. There were no significant differences in the clinical services received during the first four months of treatment from either VA or non-VA providers.

Table 12. Means for Main Effects and Interaction for Clinical Outcomes, Satisfaction and Clinical Services over Time by Study

Clinical Measure	Study	Time-Point			Significance Probability		
		Intake	4 Mos.	% Change	Study	Time	Study x Time
PTSD (Miss. Scale)	PCT	37.47	34.82	-7.07	0.0001	0.0001	n.s.
	WSDTT	32.30	30.33	-6.10			
Alcohol Abuse	PCT	0.051	0.039	-23.53	0.0006	n.s.	n.s.
	WSDTT	0.082	0.078	-4.88			
Drug Abuse	PCT	0.006	0.009	50.00	0.0001	0.0649	n.s.
	WSDTT	0.032	0.043	34.38			
Violence	PCT	0.83	0.67	-19.28	0.0607	0.0001	n.s.
	WSDTT	0.70	0.46	-34.29			
Work	PCT	8.09	7.40	-8.53	n.s.	n.s.	n.s.
	WSDTT	8.85	9.37	5.88			
Medical Condition	PCT	0.70	0.62	-11.43	n.s.	0.0098	n.s.
	WSDTT	0.77	0.73	-5.19			
Satisfaction	PCT		3.17		0.0001		
	WSDTT		3.69				
Outpatient Sessions from VA	PCT		12.32		n.s.		
	WSDTT		14.07				
Outpatient Sessions from Non-VA	PCT		1.22		n.s.		
	WSDTT		1.80				
Self-Help Group Sessions	PCT		3.92		n.s.		
	WSDTT		4.82				
Inpatient Days from VA	PCT		1.08		n.s.		
	WSDTT		2.43				

DISCUSSION AND CONCLUSIONS

Women treated in the WSDTT program showed significant improvement in several clinical domains, specifically PTSD, violence, medical condition, overall functioning, quality of life and the perceived impact of their illness on social functioning. Although there was a significant increase in drug use and no significant change for alcohol use, stratification of patients according to a history of active substance use shortly prior to beginning treatment with the WSDTTs revealed a more complex picture. Veterans who had a recent history of high substance use decreased their alcohol use substantially and their drug use slightly while patients who had a recent history of low substance use increased both their alcohol and drug use. Veterans who had the greater recent history of substance use, therefore, actually showed an improvement over the course of treatment. Those who increased their alcohol use were still somewhat lower in their use at eight months than those who decreased their use, although the level of drug use by the two groups is similar at eight months. Although there is no evidence of the development of a substance use problem among those who did not have one initially, the increase in use by this group is of potential concern and warrants closer attention.

As with male veterans treated in specialized PTSD programs, most of the improvement took place by the fourth month. While some changes were statistically different from the admission level to the eighth month, there were no significant changes in outcome between the fourth and eighth months. This pattern of an immediate improvement and then a leveling off of adjustment is very similar to that found for men treated by the PCTs (Fontana, 2002; Fontana et al., 1993) as well as for men treated in specialized PTSD inpatient programs (Fontana & Rosenheck, 1997c). We conclude that this is the general pattern to be expected for the treatment of PTSD among veterans regardless of gender and program type. In fact, we offer the hypothesis that this pattern may be descriptive of the treatment of chronically impaired populations in general.

Also similar to the patterns for men who were treated by the PCTs were those obtained for the subgroup analyses, particularly those for a history of recent substance abuse and for clinicians' assessment of veterans' commitment to working in therapy (Fontana, Rosenheck, & Spencer, 1993). Like the men treated by the PCTs, women with a history of recent substance abuse improved more in their PTSD symptoms compared to those without a recent history of substance abuse. In fact, the latter group was virtually unchanged in the severity of their PTSD symptoms. Veterans who were less highly committed to working in therapy increased their use of alcohol and drugs, while those who were more commited showed little change. This suggests that low commitment is a risk factor for substance use and should be taken as a warning sign by clinicians.

Other subgroup analyses that revealed differences in outcomes were those stratified by a) traumatic experiences of verbal harassment, b) physical harassment and c) age. Women who had been harassed more increased their substance use more and reported less of a decrease in the impact of their illness on their social adjustment than those who had been harassed less. It appears, therefore, that women who have been traumatized sexually respond to treatment with an

increase in substance use by eight months to a level as high as those with a recent history of substance abuse. This result raises the possibility that therapists' exploration of trauma may trigger psychological distress that results in increased substance use. This calls for greater efforts on the part of those treating sexually traumatized women to counter this disturbing increase.

Younger veterans improved more in violent behaviors than older veterans who showed no change. Younger veterans, in contrast, showed little change in their alcohol use, although older women increased their use. There was no significant association, however, between age and either verbal (Chi-square=0.31, 1 df, p>.50) or physical (Chi-square=0.34, 1 df, p>.50) harassment.

Overall, women said that they were "somewhat comfortable" (Mean=5.89, S.D.=1.77) in coming to VA for their health care. No evidence was found that exposure to the WSDTT program over time increased their level of comfort. What is not known is how much the initial comfort level differentiated between female veterans who came to VA and those who did not, because we do not have data on those who did not come. It may be that only those whose comfort level was relatively high came to VA, and that the contact with the WSDTTs simply confirmed their expectations. There was evidence, however, that increases and decreases in women's comfort over the eight months covered by the study were associated with corresponding changes in the strength of the therapeutic alliance. By contrast, increase and decrease in the relative emphasis on individual and group therapy did not appear to be associated with women's level of comfort with the VA. Further, the stratification of the sample by various indices of comfort with the VA was not associated with significant differences in clinical outcomes. Finally, the same pattern of results was obtained when we examined comfort in coming to VA for psychiatric services and for medical/surgical services separately.

Women's satisfaction with their treatment did not change over time. Comparisons between the men treated in the PCTs and the women treated in the WSDTTs highlighted differences in the military experiences of each gender. Almost all men served in a war zone compared to 12.5 % of women. Conversely, 44.2 % of the women served during peacetime compared to just 4.7% of the men. Consequently, the men were exposed to more hostile/friendly fire and a substantial portion participated in atrocities. For men, then, traumatic exposure was primarily combat-related at the hands of the enemy. Women, on the other hand were exposed to a much higher incidence of sexual harassment and assault at the hands of their own comrades (Fontana, Schwartz & Rosenheck, 1997; Fontana & Rosenheck, 1998; Fontana, Litz & Rosenheck, 2000). These differences in veterans' traumatic exposure constitute the most definitive difference between the PCT and WSDTT programs.

The current study sheds considerable light on the functioning of the WSDTT program clinically. Anxiolytic and antidepressant, but not antipsychotic, medications were prescribed increasingly from the beginning of treatment through eight months. In addition, there was a significant increase in the strength of the womens' therapeutic alliance with WSDTT therapists as compared to prior therapists, although the strength of the alliance with WSDTT therapists did not change from four to eight months. During the interval from four to eight months, however,

womens' commitment to working in therapy and the regularity of their attendance in treatment declined significantly. With regard to the amount of treatment received from the WSDTTs, the number of individual sessions decreased and the number of group sessions increased from four to eight months. These changes do not represent a substitution of group sessions for individual sessions on an individual patient basis as demonstrated by the low correlation between change in type of sessions with each other ($r=.13$, 142 df, $p>.10$). The changes, however, might represent a more programatically planned shift from individual to group treatment.

Conclusions

The defining difference of the WSDTT program compared to the PCT program lies in the type of traumatic exposure that characterizes the veterans and that provides the primary target of therapeutic efforts. For PCT veterans, traumatic exposure has been primarily combat-related and has been experienced at the hands of the enemy. For WSDTT veterans, traumatic exposure has been primarly sex-related and has been experienced at the hands of their male comrades. WSDTT veterans are somewhat more satisfied with their treatment than PCT veterans. Clinical outcomes, however, are quite comparable between the WSDTT and PCT programs in both the magnitude and pattern of change in clinical status. Taken as a whole, our results suggest a peaking of clinical effectiveness, patient motivation and treatment intensiveness at four months after the beginning of treatment.

Examination of the outcomes for subgroups of WSDTT veterans reveals that those with a history of recent substance use tend to improve more than their counterparts. There are some potentially worrisome trends, however, for veterans who are lower in commitment, older in age and exposed to more sexual harassment to increase their substance use during treatment. These trends warrant closer attention.

REFERENCES

American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders, 4th Ed., American Psychiatric Press, Washington DC.

Chinman, M., Rosenheck, R.A., & Lam, J. (2000). The case management relationship and outcomes for homeless people with serious mental illness. Psychiatric Services 51:1142-1147.

Cockburn, J., Fahey, P., & Sanson-Fisher, R.W. (1987). Construction and validation of a questionnaire to measure the health beliefs of general practice patients. Family Practice 4: 108-116.

Endicott, J., Spitzer, R.L., Fleiss, J.L., & Cohen, J. (1976). The Global Assessment Scale: A procedure for measuring overall severity of psychiatric disturbance. Archives of General Psychiatry 33: 766-771.

Fontana, A. (2002). Progress Report to the Working Group of the Outpatient Outcomes Study. Northeast Program Evaluation Center: West Haven, CT.

Fontana, A. & Rosenheck, R. (1994a). Improving the Efficiency of Resource Utilization in Outpatient Treatment of Post-Traumatic Stress Disorder: A Report on Specialized PTSD Programs. Northeast Program Evaluation Center: West Haven, CT.

Fontana, A. & Rosenheck, R. (1994b). A short form of the Mississippi Scale for measuring change in combat-related PTSD. Journal of Traumatic Stress 7: 407-414.

Fontana, A. & Rosenheck, R. (1997a). Women under Stress: Evaluation of the Women's Stress Disorder Treatment Teams. Northeast Program Evaluation Center: West Haven, CT.

Fontana, A. & Rosenheck, R. (1997b). Outcome Monitoring of VA Specialized Intensive PTSD Programs: Fiscal Year 1996 Report. Northeast Program Evaluation Center: West Haven, CT.

Fontana, A., & Rosenheck, R. (1997c). Effectiveness and cost of the inpatient treatment of posttraumatic stress disorder: Comparison of three models of treatment. American Journal of Psychiatry 154: 758-765.

Fontana, A. & Rosenheck, R. (1998). Duty-related and sexual stress in the etiology of PTSD among women veterans who seek treatment. Psychiatric Services 49: 658-662.

Fontana, A., Litz, B. & Rosenheck, R. (2000). Impact of combat and sexual harassment on the severity of posttraumatic stress disorder among men and women peacekeepers in Somalia. Journal of Nervous and Mental Disease 188: 163-169.

Fontana, A., Rosenheck, R., & Spencer, H. (1993). The Long Journey Home III : The Third Progress Report on the Department of Veterans Affairs Specialized PTSD Programs. Northeast Program Evaluation Center: West Haven, CT.

Fontana A., Rosenheck, R., & Spencer, H. (1995). The Long Journey Home IV: The Fourth Progress Report on the Department of Veterans Affairs Specialized PTSD Programs. Northeast Program Evaluation Center: West Haven, CT.

Fontana A., Rosenheck, R., Spencer, H. & Gray, S. (2002). The Long Journey Home X: The Tenth Progress Report on the Department of Veterans Affairs Specialized PTSD Programs. Northeast Program Evaluation Center: West Haven, CT.

Fontana, A., Schwartz, L.S. & Rosenheck, R. (1997). Posttraumatic stress disorder among female Vietnam veterans: A causal model of etiology. American Journal of Public Health 87: 169-175.

Francke, L.B. (1997). Ground Zero: The Gender Wars in the Military. Simon and Schuster, New York.

Hoff, R.A., & Rosenheck, R.A. (1997). Utilization of mental health services by women in a male-dominated environment: the VA experience. Psychiatric Services 48: 1408-1414.

Hoff, R.A., & Rosenheck, R.A. (1998). Female veterans use of VA health care services. Medical Care 36: 1114-1119

Horvath, A.O. & Greenberg, L. (1989). Development and validation of the Working Alliance Inventory. Journal of Counseling Psychology 36: 223-233.

Keane, T.M., Caddell, J.M., & Taylor, K.L. (1988). The Mississippi Scale for Combat-Related PTSD: Studies in reliability and validity. Journal of Consulting and Clinical Psychology 56: 85-90.

Kulka, R.A., Schlenger, W.E., Fairbank, J.A., Hough, R.L., Jordan, B.K., Marmar, C.R., & Weiss, D.S. (1990). Trauma and the Vietnam War Generation: Report of the Findings from the National Vietnam Veterans Readjustment Study. Brunner/Mazel: New York.

Lehman, A.F. (1988). A Quality of Life Interview for the chronically mentally ill. Evaluation and Program Planning 11: 51-62.

Littel, R.C., Milliken, G.A., Stroup, W.W., & Wolfinger, R.D. (1996). SAS System for Mixed Models. SAS Institute: Cary, NC.

McLellan, A.T., Luborsky, L., Cacciola, J., Griffith, J., Evans, F., Bar, H.L., & O'Brien, C.P. (1985). New data from the Addiction Severity Index: Reliability and validity in three centers. Journal of Nervous and Mental Disease 173: 412-423.

Neale, M.S. & Rosenheck, R.A. (1995). Therapeutic alliance and outcome in a VA intensive case management program. Psychiatric Services 46: 719-721.

Rosenheck, R. & Fontana, A. (1996). Treatment of veterans severely impaired by posttraumatic stress disorder. In R.J. Ursano & A.E. Norwood (Eds.) Emotional Aftermath of the Persian Gulf War: Veterans, Families, Communities, and Nations. American Psychiatric Press: Washington DC, pp. 501-532.

Rosenheck, R.A., & Greenberg, G. (2002). National Mental Health Program Performance Monitoring System: Fiscal Year 2001 Report. Northeast Program Evaluation Center: West Haven, CT.

Smilkstein, G., Ashworth, C., & Montano, D. (1982) Validity and reliability of the Family APGAR as a test of family function. Journal of Family Practice 15: 303-311.

Wallston, K.A & Wallston, B.S. (1978). Development of the multidimensional health locus of control (MHLC) scales. Health Education Monographs 6:160-170.

Wolfe, J., Brown, P.J., Furey, J., & Levin, K. (1993). Development of a wartime stressor scale for women. Psychological Assessment: Journal of Consulting and Clinical Psychology 5: 330-335.